Exercise 5.1

No calculators are permitted in this exercise.

Name:

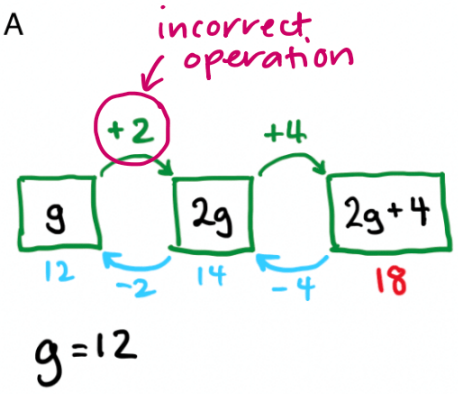
Worked Example for Simple Questions

Which option shows a correct solution for;

$2g + 4 = 18$

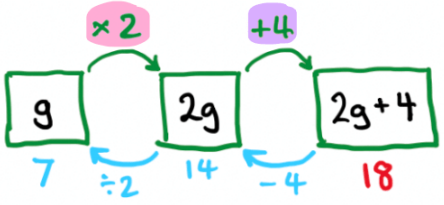
g is multiplied by 2 and then 4 is added with a result of 18. The solution in B shows these operations and backtracking correctly.

A



g=12

B



g=7

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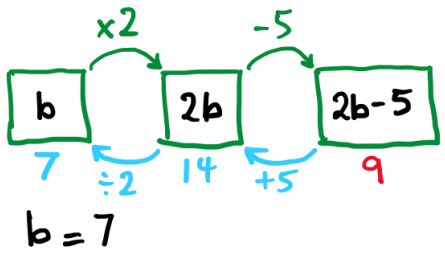
Question 1

Which option shows a correct solution for;

$$2b - 5 = 9$$

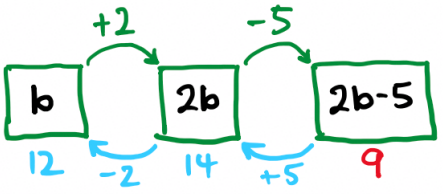
Circle the correct option

A



b = 7

B



b = 12

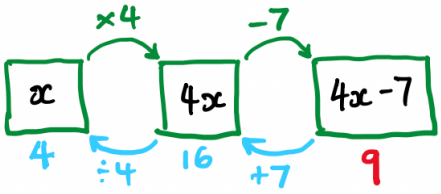
Question 2

Which option shows a correct solution for;

$$4x - 7 = 9$$

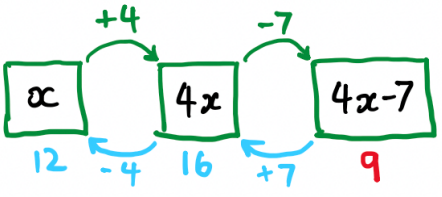
Circle the correct option

A



x = 4

B



x = 12

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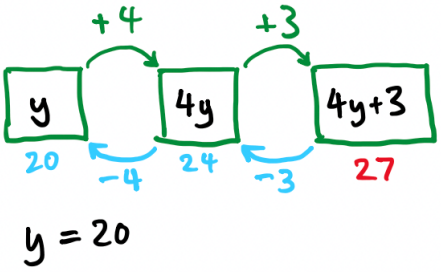
Question 3

Which option shows a correct solution for;

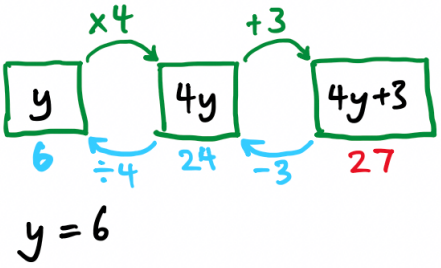
$$4y + 3 = 27$$

Circle the correct option

A



B



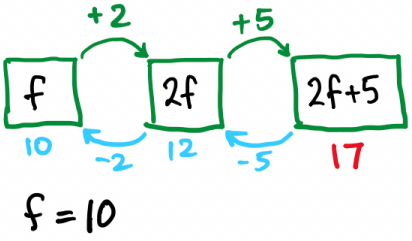
Question 4

Which option shows a correct solution for;

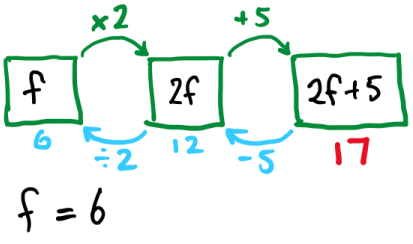
$$2f + 5 = 17$$

Circle the correct option

A



B



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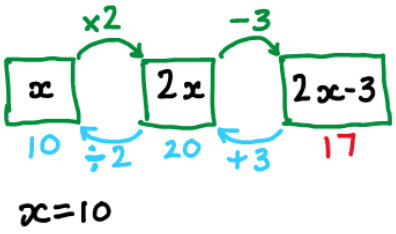
Question 5

Which option shows a correct solution for;

$$2x - 3 = 17$$

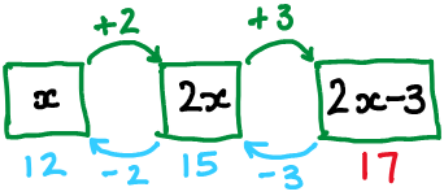
Circle the correct option

A



$x=10$

B



$x=12$

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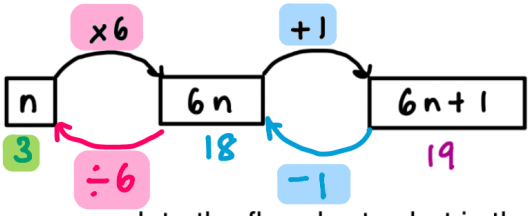
Worked Example for Standard Questions

Phillipe is using a backtracking flowchart to solve the equation $6n + 1 = 19$.



If you complete the flowchart, what is the solution to the equation?

$n =$ 3

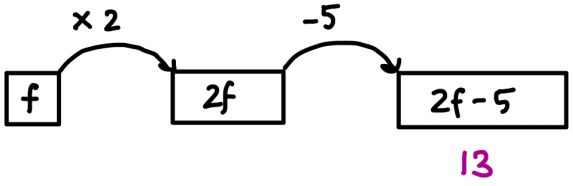
Inverse operation of +1 is −1.
19 − 1 = 18

Inverse operation of ×6 is ÷6.
18 ÷ 6 = 3

The solution of $6n+1=19$ is $n=3$.

Question 6

Trang is using a backtracking flowchart to solve the equation $2f - 5 = 13$.



If you complete the flowchart, what is the solution to the equation?

$f =$ ☐

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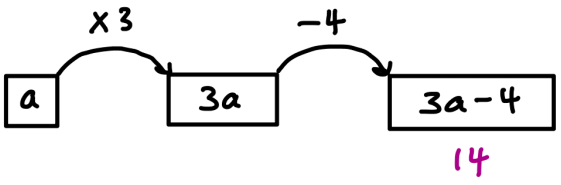
Question 7

Doungdav is using a backtracking flowchart to solve the equation $3a - 4 = 14$.

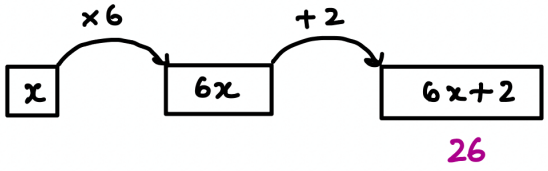


If you complete the flowchart, what is the solution to the equation?

$a =$ ☐

Question 8

Johnny is using a backtracking flowchart to solve the equation $6x + 2 = 26$.

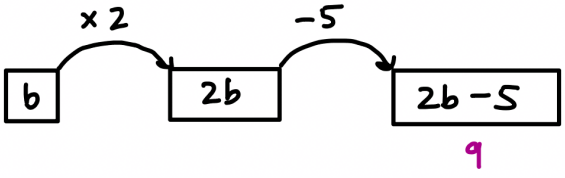


If you complete the flowchart, what is the solution to the equation?

$x =$ ☐

Question 9

Ingrid is using a backtracking flowchart to solve the equation $2b - 5 = 9$.



If you complete the flowchart, what is the solution to the equation?

$b =$ ☐

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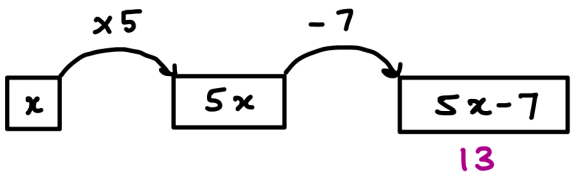
Question 10

Cecilia is using a backtracking flowchart to solve the equation $5x - 7 = 13$.



If you complete the flowchart, what is the solution to the equation?

$x =$ ☐

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Exercise 5.3

A calculator is permitted throughout this exercise.

Worked Example for Simple Questions

Solve $6m = 18$

$\frac{6m}{6} = \frac{18}{6}$ ← divide by 6 to undo multiplying by 6

$m = 3$

$m =$ 3



Question 1

Solve $5m = 40$

$m =$

Question 2

Solve $5n = 35$

$n =$

Question 3

Solve $4a = 32$

$a =$

Question 4

Solve $3f = 36$

$f =$

Question 5

Solve $3b = 27$

$b =$

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Worked Example for Standard Questions

Solve the equation $\frac{y}{4} = 8$.

$y =$ 32

- y has been ÷ by 4
- do the opposite; multiply both sides by 4.

$\frac{y}{4} \times 4 = 8 \times 4$

$y = 32$

Question 6

Solve the equation $\frac{r}{3} = 6$.

$r =$ ☐

Question 7

Solve the equation $3t = 21$.

$t =$ ☐

Question 8

Solve the equation $2s = 18$.

$s =$ ☐

Question 9

Solve the equation $u - 2 = 13$.

$u =$ ☐

Question 10

Solve the equation $x + 3 = 19$.

$x =$ ☐

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Exercise 5.5

No calculators are permitted in this exercise.

Worked Example for Simple Questions

When solving the equation $2y + 3 = 17$, the first step is:

A	B
Subtract 3 from both sides	Divide both sides by 2

* The last operation applied to y is +3.
* To solve the equation reverse this operation first by −3.

The answer is A.

Question 1

When solving the equation $5y + 13 = 38$, the first step is:

Circle the correct option

A	B
Subtract 13 from both sides	Divide both sides by 5

Question 2

When solving the equation $3t + 11 = 32$, the first step is:

Circle the correct option

A	B
Divide both sides by 3	Subtract 11 from both sides

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Solving Two Step Equations Using Inverse Operations

Question 3

When solving the equation $4p + 7 = 23$, the first step is:

Circle the correct option

A	B
Divide both sides by 4	Subtract 7 from both sides

Question 4

When solving the equation $2r + 10 = 22$, the first step is:

Circle the correct option

A	B
Subtract 10 from both sides	Divide both sides by 2

Question 5

When solving the equation $4x + 12 = 36$, the first step is:

Circle the correct option

A	B
Divide both sides by 4	Subtract 12 from both sides

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Solving Two Step Equations Using Inverse Operations

Worked Example for Standard Questions

Solve the equation $3t + 1 = 34$.

$t =$ 11

$3t + 1 = 34$

$3t + 1 - 1 = 34 - 1$ subtract 1 from both sides

$3t = 33$

$3t \div 3 = 33 \div 3$ divide both sides by 3

$t = 11$

Question 6

Solve the equation $2x + 4 = 16$.

$x =$

Question 7

Solve the equation $5q - 3 = 17$.

$q =$

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Solving Two Step Equations Using Inverse Operations

Question 8

Solve the equation $3y - 5 = 13$.

$y =$ ☐

Question 9

Solve the equation $4p - 7 = 21$.

$p =$ ☐

Question 10

Solve the equation $5r + 3 = 28$.

$r =$ ☐

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Exercise 5.7

No calculators are permitted in this exercise.

Worked Example for Simple Questions

Solve the equation:

$\frac{f}{5} + 3 = 8$

$f =$ 25

$\frac{f}{5} + 3 - 3 = 8 - 3$ ← subtract 3 from both sides.

$\frac{f}{5} = 5$

$\frac{f}{5} \times 5 = 5 \times 5$ ← multiply both sides by 5

$f = 25$

Question 1

Solve the equation:

$\frac{a}{6} + 2 = 7$

$a =$

Question 2

Solve the equation:

$\frac{p}{6} + 4 = 6$

$p =$

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Solving Two Step Equations with Fractions I

Question 3

Solve the equation:

$$\frac{d}{3} + 1 = 8$$

$d =$ ☐

Question 4

Solve the equation:

$$\frac{k}{3} + 1 = 5$$

$k =$ ☐

Question 5

Solve the equation:

$$\frac{m}{6} + 2 = 5$$

$m =$ ☐

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Worked Example for Standard Questions

Solve the equation:

$\frac{w}{4} - 5 = -13$

$w =$ -32

$\frac{w}{4} - 5 = -13$ ← add 5 to both sides (inverse of -5)

$\frac{w}{4} \times 4 = -8 \times 4$ ← multiply both sides by 4 (inverse of ÷4)

$w = -32$

Question 6

Solve the equation:

$5 + \frac{t}{2} = 13$

$t =$

Question 7

Solve the equation:

$\frac{x}{4} - 2 = 5$

$x =$

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Solving Two Step Equations with Fractions I

Question 8

Solve the equation:

$$\frac{d}{5} - 3 = -7$$

$d =$ ☐

Question 9

Solve the equation:

$$\frac{y}{2} - 5 = -9$$

$y =$ ☐

Question 10

Solve the equation:

$$\frac{g}{3} + 4 = -2$$

$g =$ ☐

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Exercise 5.9

No calculators are permitted in this exercise.

Worked Example for Simple Questions

Solve the equation:

$$\frac{y-7}{5} = 6$$

$y =$ 37

$\frac{y-7}{5} \times 5 = 6 \times 5$ ← multiply both sides by 5

$y - 7 = 30$

$y - 7 + 7 = 30 + 7$ ← add 7 to both sides

$y = 37$

Question 1

Solve the equation:

$$\frac{w-4}{6} = 5$$

$w =$

Question 2

Solve the equation:

$$\frac{q-4}{5} = 3$$

$q =$

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Solving Two Step Equations with Fractions II

Question 3

Solve the equation:

$$\frac{p-3}{4}=5$$

$p=$ ☐

Question 4

Solve the equation:

$$\frac{t-6}{4}=5$$

$t=$ ☐

Question 5

Solve the equation:

$$\frac{x-1}{5}=4$$

$x=$ ☐

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Solving Two Step Equations with Fractions II

Worked Example for Standard Questions

Solve the equation:

$$\frac{a+4}{9} = -5$$

$9 \times \frac{a+4}{9} = -5 \times 9$ ← multiply both sides by 9 (inverse of ÷9)

$a + 4 = -45$

$-4 \quad -4$ ← subtract 4 from both sides (inverse of +4)

$a = -49$

$a = -49$

Question 6

Solve the equation:

$$\frac{u-4}{9} = -2$$

$u =$ ☐

Question 7

Solve the equation:

$$\frac{3+a}{11} = 5$$

$a =$ ☐

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Solving Two Step Equations with Fractions II

Question 8

Solve the equation:

$$\frac{h+5}{3} = -10$$

$h =$ ☐

Question 9

Solve the equation:

$$\frac{10+m}{2} = 4$$

$m =$ ☐

Question 10

Solve the equation:

$$\frac{b-5}{7} = -3$$

$b =$ ☐

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Exercise 5.11

No calculators are permitted in this exercise.

Worked Example for Simple Questions

Solve the equation:

$\frac{30}{m} = 6$

$m =$ 5

$\frac{30}{m} \times m = 6 \times m$ ← multiply both sides by m

$\frac{30}{6} = \frac{6m}{6}$ ← divide both sides by 6

$5 = m$

Question 1

Solve the equation:

$\frac{40}{a} = 4$

$a =$

Question 2

Solve the equation:

$\frac{20}{b} = 4$

$b =$

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Solving Equations with the Unknown on the Denominator

Question 3

Solve the equation:

$$\frac{40}{a} = 10$$

$a =$ ☐

Question 4

Solve the equation:

$$\frac{30}{c} = 3$$

$c =$ ☐

Question 5

Solve the equation:

$$\frac{20}{n} = 5$$

$n =$ ☐

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Solving Equations with the Unknown on the Denominator

Worked Example for Standard Questions

Solve the equation:

$\frac{40}{a} + 5 = 9$

$a =$ 10

$\frac{40}{a} + 5 = 9$ ← Subtract 5 from both sides

$\frac{40}{a} = 4$ ← Multiply both sides by a

$40 = 4a$ ← Divide both sides by 4

$10 = a$

Question 6

Solve the equation:

$2 = \frac{20}{b}$

$b =$ ☐

Question 7

Solve the equation:

$5 = \frac{10}{c}$

$c =$ ☐

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Solving Equations with the Unknown on the Denominator

Question 8

Solve the equation:

$$\frac{15}{m} - 3 = 2$$

$m =$ ☐

Question 9

Solve the equation:

$$12 = \frac{16}{n} - 4$$

$n =$ ☐

Question 10

Solve the equation:

$$\frac{10}{a} + 7 = 9$$

$a =$ ☐

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